What is claimed is:

1. A method of managing the energy stored in a single ignition coil of a distributor inductive ignition for an engine, the engine comprising a plurality of cylinders and the ignition coil having dwell control parameters, the method comprising:

operating the engine in different operating speed ranges;

determining at least one engine performance parameter;

adjusting at least one dwell control parameter of the ignition coil in all of the different speed ranges, the adjustment based at least in part upon an evaluation of the at least one engine performance parameter;

firing the cylinders of the engine; and

altering the stored energy of the ignition coil to an optimum value between the firings of the engine cylinders, the altering being made for each of the different speed ranges and as a result of the adjusting of the dwell control parameters.

2. The method of claim 1 wherein the performance parameters are selected from the operating speed of the engine, the operating mode of the engine, and the performance of the engine during use of a particular margin value.

3. The method of claim 1 wherein the dwell control parameters are selected from a ramp time of an ignition coil, an excess dwell time period of the ignition coil, an instantaneous turn-on time of the ignition coil, a turn-off time period of the ignition coil, and an instantaneous turn-off time of the ignition coil.

4. The method of claim 1 further comprising determining a ramp time based upon a desired excess dwell time, determining a current limit value, and increasing a current supply to the ignition coil to the target current value over the ramp time.

5. The method of claim 1 further comprising turning off a current supply at the ignition coil at a turn-off time and adjusting the turn-off time based upon the excess dwell time.

6. The method of claim 5 further comprising determining whether the coil has reached a full current value during a first cycle and adjusting the turn-off time of a second cycle to a predetermined minimum value.

7. The method of claim 1 wherein adjusting the dwell control parameters of the engine includes adjusting the excess dwell time in fixed increments based at least in part upon the operating mode of the engine and the engine speed.

8. The method of claim 1 further comprising determining a current limit and operating the engine in a cranking mode and turning off the current to the primary ignition coil while in cranking mode to generate a spark when the primary current to the coil reaches the current limit.

9. The method of claim 1 further comprising measuring the engine speed, determining when the engine speed exceeds a predetermined rev limit value and preventing the coil from activating when the engine speed exceeds the predetermined rev limit value.

10. The method of claim 1 further comprising:

sensing the magnitude of an excess dwell error for a selected dwell time;

adjusting the dwell time proportionally based upon the sensed excess dwell error;

determining whether the dwell time meets at least one predetermined criteria; and

reducing the dwell time based upon whether the dwell time met at least one of the predetermined criteria.

11. The method of claim 1 further comprising:

detecting number of missed excess dwell cycles;

detecting the number of double excess dwell cycles; and

adjusting a coil-off time and a minimum coil-off time based upon the number of missed excess dwell cycles and double excess dwell cycles.

12. The method of claim 1 further comprising detecting the presence of a traction control device.

13. The method of claim 12 wherein the detecting the presence includes determining whether the traction control device is connected to a mag-input signal.

14. The method of claim 13 wherein the detecting the presence includes measuring the amplitude rate of change in the mag-input signal.

15. The method of claim 13 wherein the detecting the presence includes measuring on time and comparing from cycle to cycle.

16. The method of claim 13 wherein the detecting the presence includes measuring the high time of the mag-input signal, averaging the high time, and comparing the average to an instantaneous high time of the mag-input signal.

17. The method of claim 12 wherein the detecting the presence includes determining whether the traction control device is connected to an ignition coil primary.

18. The method of claim 17 wherein the detecting the presence includes sensing voltage rise of the coil primary.

19. The method of claim 12 wherein the detecting the presence includes using functional circuitry that cannot be removed without detection.

20. A device for managing the energy in a single ignition coil of a distributor-based ignition system comprising:

a sensor for sensing engine operating parameters of an engine;

a controller coupled to the sensor and having an output indicating dwell control parameters of an ignition coil;

wherein the dwell control parameters are adjusted based upon the engine operating parameters such that the coil energy stored in the single ignition coil is adjusted and managed at all operating speeds of the engine.

21. The device of claim 20 wherein the controller includes means for increasing the current to the ignition coil to a value over a ramp time and adjusting the ramp time based upon a desired excess dwell time.

22. The device of claim 20 further comprising a primary ignition coil coupled to the controller and wherein the controller includes means for turning off a current supply at the primary coil at a turn-off time and means for adjusting the turn-off time based upon the dwell time.

23. The device of claim 20 wherein the controller includes means for adjusting an excess dwell time in fixed increments based at least in part upon the operating mode and engine speed.

24. The device of claim 20 further comprising a primary ignition coil coupled to the controller and wherein the controller includes means for operating the engine is in a cranking mode and turning off a current supply to the primary ignition coil while the engine is in cranking mode to generate a spark when the primary current to the coil reaches a current limit.

25. The device of claim 20 further comprising a traction control device coupled to the controller and the controller includes means for detecting the traction control device.

26. The device of claim 25 wherein the means for detecting includes means for determining whether the traction control device is connected to a mag-input signal.

27. The device of claim 26 wherein the means for detecting includes means for measuring the amplitude rate of change in the mag-input signal.

28. The device of claim 26 wherein the means for detecting includes means for measuring on time and comparing from cycle to cycle.

29. The device of claim 26 wherein the means for detecting includes measuring the high time of the mag-input signal, averaging the high time, and comparing the average to an instantaneous high time of the mag-input signal.

30. The device of claim 25 wherein the means for detecting includes means for determining whether the traction control device is connected to an ignition coil primary.

31. The device of claim 30 wherein the means for detecting includes means for sensing voltage rise of the coil primary.

32. The device of claim 25 wherein the means for detecting includes functional circuitry that cannot be removed without detection and without affecting the operation of the system.

33. The device of claim 30 wherein the primary ignition coil has an inductance of at least 1 mH and stores from 160 to 250 mJ of energy.

34. The device of claim 20 further comprising means for producing a tach-out signal providing a fixed duty cycle at all engine speeds.